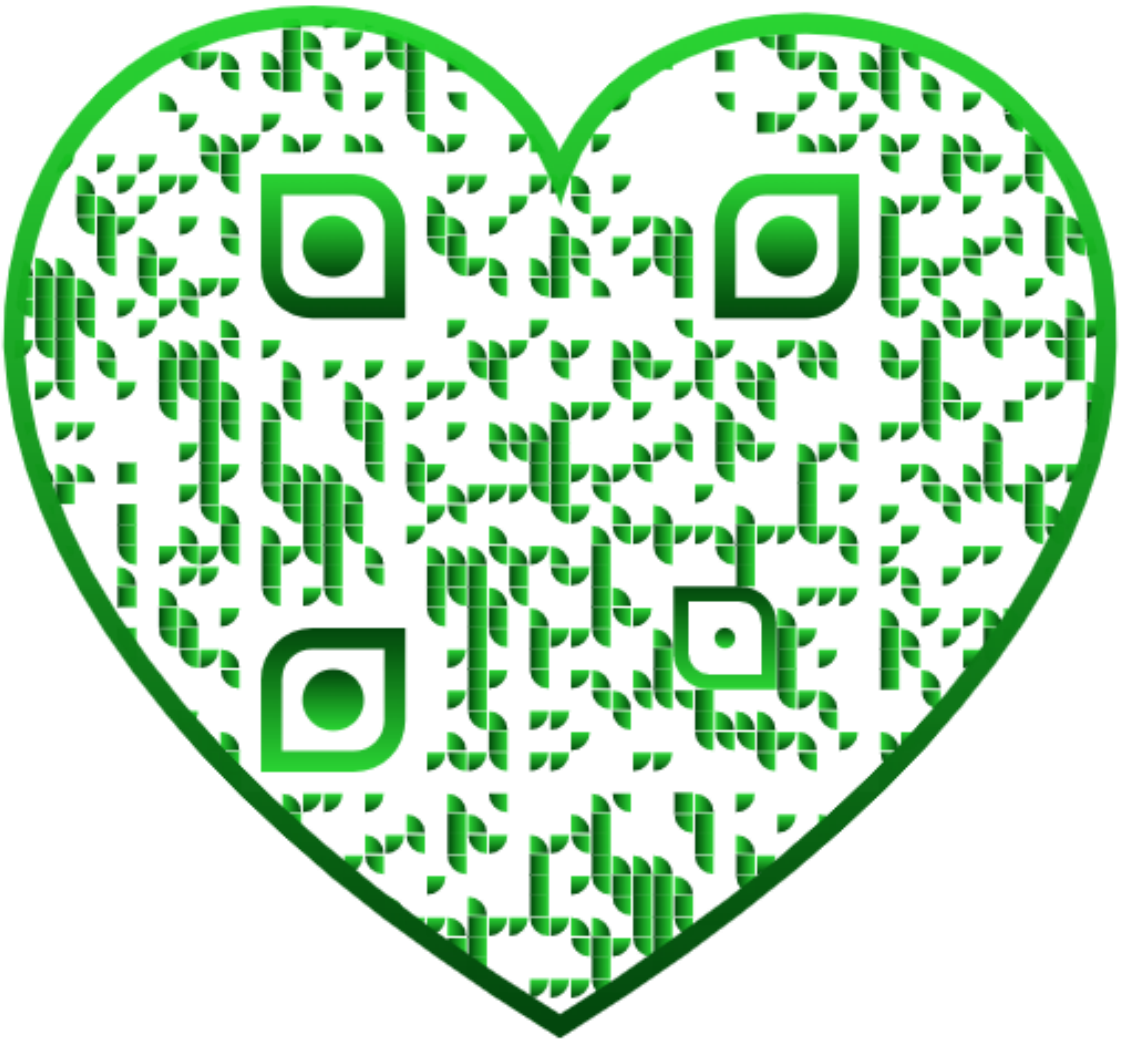
Physiology labs for blood (1)

سحب الدم
blood collection = phlebotomy

المجموعة السابعة



Types of blood vessels to collect blood from:

1 - Arteries : carries oxygenated blood , so it is used in blood gases measurement but they are not used in all the other testes because they are deep and have thick wall .

2 – Capillaries : they can be used , but they give small amount which can't be collected in tubes with anti-coagulant. So we use the blood immediately in case of measuring one thing only such as blood sugar test.

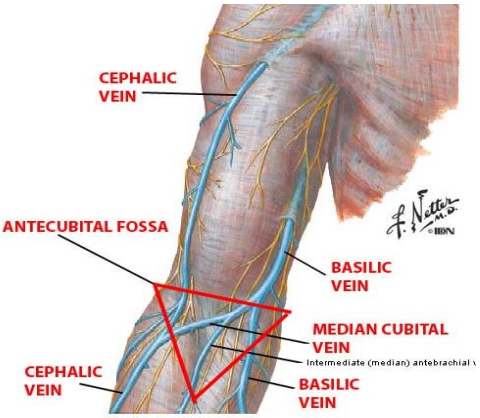
3 – veins : most commonly used , gives **whole blood** or **serum**

-serum : not used in physiology lab , but in the biochemistry labs

-whole blood : the one we use . It contains anti-coagulant, which has many types, but the anti-coagulant we use is **EDTA**

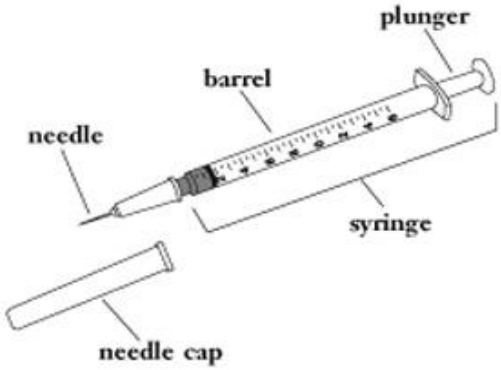
Best site for blood collection :

in the cubital fossa from the **Median** , **Cephalic** and **Basilic** veins , the Median is usually the best but not always. So remember to collect always from the most **clear** and the most **prominent** which is determined by **feeling** the vein not seeing it



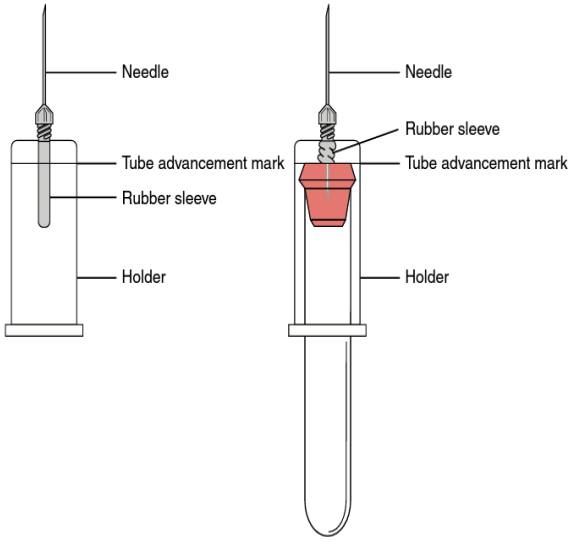
Tools for blood collection :

1- syringe : most used , but it is limited to collect 10 cc so for the tests that need for example 20 cc we use the vacuum



2- vacuum : can fell many tubes , each tube contain usually 5 cc , so for 20 cc we use 4 tubes .

-**we don't use** it in **babies** and in case of **very superficial veins** because it cause them to collapse



Preparing for blood collection:

- good and **clean appearance** and **kind treatment** to gain the patient trust**.**

- putting all the tools in the table , and they are: -

1- syringe : open it in front of the patient to make him trust his is not getting infected by a used syringe

2- tourniquet : it is not used if the vein is already visible and we prefer not to use at all because it effects in the result especially calcium , if it is used we open it as soon as the blood start to enter the syringe . if we remove the syringe before removing the tourniquet the vein starts bleeding and it may cause hematoma

-strong tying of the tourniquet increases the pain & causes the vein to disappear

3- antiseptic: we use alcohol and usually as alcohol swab,

- increasing the amount of alcohol used causes pain and may cause hemolysis to the sample

4-**blood tube**: contain the anti-coagulant to store the blood for a long time.

-they have a label , it is necessary to write the patient information on it.

-tubes have certain amount of anti-coagulant, that is why they store specific amount of blood (3 ,5 ,10 cc) to keep the blood & the anti-coagulant in balance.

Steps of blood collection:

1-tie the tourniquet above the cubital fossa.

2-fix the needle on the syringe.

3-clean the skin by alcohol swab.

4-insert the needle in the vein with the cut surface directed above.

A. Correct insertion technique: blood flows freely into needle.

5-start collecting by pulling the plunger of the syringe , open the tourniquet as soon as the blood start to enter the syringe.

6- after collecting the needed amount remove the syringe and press on the place by alcohol swab.

7-pour the blood into the tube containing the anti-coagulant , the tubes in the lab are(not evacuated from air = غير مفرغة من الهواء) so we have to open the syringe and the tube and pour the blood on the wall of tube slowly .

8-close the tube and gently mix it

9-close the syringe and throw it in the sharp container.

Common mistakes during blood collection:

1-partial penetration of the vein : causes the blood to leak into the interstitial fluid making the skin color blue .

- the solution : continue collecting blood , and put a(**compress = كمادة**) on the skin after collecting

1 Needle partially inserted and causes blood leakage into tissue.

2-too far insertion of the needle : causes pain due to reaching the muscles and there is no blood entering the syringe

- the solution : pull the needle slowly to make it enter the vein and continue collecting as soon the blood appear in the syringe

2 Needle inserted too far.

3- vein collapse: the blood filling stops in this case due to weak blood flow and fast filling of the syringe

-the solution : stop collecting for a while and resume after the collapse disappear

3 Collapsed.

4-hitting the wall of the vein: due to insertion of the needle in a direction that is different then the direction of the vein

-the solution : try again but feel the direction of the vein before inserting the needle